

Appl. No. 10/806,749
Amdt. dated March 3, 2005
Reply to Office Action of February 8, 2005

REMARKS/ARGUMENTS

Claims 35 - 50 remain in the application for consideration. Reconsideration of the application is requested in view of the statements appearing below herein.

1. The Requirement for Election of Species has been made final. Claims 51 - 56 have been canceled without prejudice to the right of applicants under 35 U.S.C. § 121 to file a divisional application directed to these claims.

2. Claims 35 - 37 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 3,895,173 ("Adachi"). In support of this rejection the examiner has alleged that the reference teaches a thermal imaging member which includes a substrate, a first image-forming layer and a second image-forming layer, wherein the first image-forming layer has a lower activation temperature than the second image-forming layer.

Applicants traverse this ground of rejection. Adachi does not teach each and every feature of the claimed subject matter as is required to properly support a rejection under Section 102.

The thermal imaging member recited in claim 35 includes a substrate, first and second image-forming layers and an interlayer positioned between the first and second image-forming layers. The first image-forming layer is characterized as being closer to the substrate than the second image-forming layer and as having a lower activation temperature.

Adachi does teach a thermal recording member that has first and second image-forming layers and an interlayer. The recording member is illustrated in Fig. 1 where there is shown a first color-forming layer 1 and a second color-forming layer 2 arranged on opposite sides of an interlayer 3. The first color-forming layer 1 of Adachi is positioned farther from the substrate 4 than the second color-forming layer 2.

Nowhere in Adachi is there any teaching that the activation temperature of color-forming layer 1 be higher than the activation temperature of color-forming layer 2 as is required in applicants' claimed thermal imaging members. In fact, Adachi teaches that the activation temperature of color-forming layer 1 should be lower than that of color-forming layer 2 as is made clear from the disclosure in Figs. 4 and 5 and in columns (c) and (d) of Table 1 in column 10, which show the color-forming characteristics of exemplary imaging members according to Adachi.

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Elsewhere, in column 3, lines 1 - 25 the quantity of heat necessary to provide color formation in the color-forming layers is described as Q_1 and Q_3 , respectively, for color-forming layers 1 and 2. These quantities of heat are stated to be "...in such a relation as to satisfy the inequality $Q_1 < Q_2 \leq Q_3$...", where Q_2 is the amount of heat necessary to fuse the interlayer 3 (see, for example, column 3, lines 10 - 15). While it would be clear to one of ordinary skill in the art that the activation temperature for a particular color-forming layer cannot be derived from the quantity of heat required to provide color formation in the layer without knowledge of the heat capacity to be heated, nevertheless the fact remains that this teaching of Adachi suggests the opposite order of activation temperatures for color-forming layers 1 and 2 than is required in applicants' claimed thermal imaging members.

In view of the foregoing reasons it is clearly apparent that Adachi does not teach each and every feature of the thermal imaging member recited in claims 35 - 37.

Reconsideration of this ground of rejection and withdrawal thereof are respectfully requested.

3. Claims 38 - 41, 49 and 50 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Adachi. In support of the rejection the examiner has asserted that

[T]he experimental modification of this prior art in order to ascertain optimum

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operating conditions (e.g., determine layer thicknesses) fails to render applicant's claims patentable in the absence of unexpected results.

Applicants traverse this ground of rejection. Claims 38 - 41, 49 and 50 are dependent upon claim 35. These claims are patentable over the disclosure of Adachi for the same reasons discussed in detail above with respect to this reference. Adachi nowhere even remotely suggests the thermal imaging member recited in the present claims with the specified arrangement of image-forming layers. Given that Adachi teaches an arrangement of color-forming layers which is the opposite of that of applicants, the reference teaches away from the claimed imaging members of applicants. Those skilled in the art and knowing of Adachi would not be taught the embodiments recited in claims 38 - 41, 49 and 50 within the meaning of Section 103.

4. Claims 42 - 46 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Adachi in view of U.S. Patent 4,665,410 ("Ilyama et al."). In support of the rejection it is asserted that Ilyama et al. teaches it is conventional in the thermal imaging art to employ more than two thermosensitive layers and protective outer layers in thermal imaging members.

Applicants traverse this ground of rejection. Claims 42 - 46 are dependent upon claim 35, either directly or indirectly, and are patentable for the same reasons advanced above with respect to Adachi and further because Ilyama et al. does not teach or suggest the claimed subject matter.

Ilyama et al. generally teaches a thermosensitive recording material having three or more thermosensitive coloring layers with decolorizing intermediate layers interposed between the thermosensitive coloring layers. This reference, like Adachi, describes a recording material wherein the activation temperatures of the thermosensitive color-forming layers decrease as the layers become more distant from the substrate and therefore does not teach or suggest applicants' claimed imaging members.

This feature of the recording material of Ilyama et al. can be seen, for example, in the discussion at column 3, lines 18 - 38. The recording material is described as having overlaid successively on a support, a 1st thermosensitive coloring layer, a 1st decolorizing layer, a 2nd thermosensitive coloring layer, a 2nd decolorizing layer, an (n-1)th thermosensitive coloring layer, an (n-1)th decolorizing layer and an (n)th thermosensitive coloring layer. The amount of thermal energy needed for color formation, i.e., E_1 for the 1st thermosensitive layer, E_2 for the 2nd thermosensitive layer, E_{n-1} for the (n-1)th layer and E_n for the (n)th layer, is in the order of $E_1 > E_2 > E_{n-1} > E_n$.

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Reconsideration of this ground of rejection and withdrawal thereof are respectfully requested.

5. Claims 42 - 46 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Adachi in view of U.S. Patent 4,956,251 ("Washizu et al."). In support of the rejection it is asserted that Washizu et al. teaches that it is known in the thermal imaging member art to employ transparent substrates and protective overcoat layers.

Applicants traverse this ground of rejection. Claims 46 - 48 are dependent upon claim 35, either directly or indirectly, and are patentable for the same reasons advanced above with respect to Adachi and further because Washizu et al. does not teach or suggest the claimed subject matter.

Washizu et al. teaches a multicolor heat-sensitive recording material having a transparent support and two or more color-producing unit layers. At least one color-producing unit layer is arranged on opposite sides of the support. This reference, like Adachi and Ilyama et al., describes a recording material wherein the activation temperatures of the thermosensitive color-forming layers decrease as the layers become more distant from the substrate and therefore does not teach or suggest applicants' claimed imaging members.

Embodiments of the recording material where more than one color-producing unit layer are arranged on one side of the substrate are illustrated in Figs. 3 and 4.

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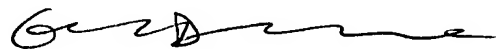
Imaging is carried out by initially causing the yellow color- and cyan color-producing layers to produce their respective colors at a "rather low temperature by recording of low thermal energy" and after a photofixation step, heat recording is carried out for "the thermally low sensitive magenta layer by application of relatively high thermal energy, compared with the preceding heat recordings." (see column 3, line 59 to column 4, line 6). Thus, the cyan coloring layer, which is more sensitive, i.e., has a lower activation temperature, is farther from the substrate than the magenta coloring layer which is less sensitive, i.e., has a higher activation temperature.

Reconsideration of this ground of rejection and withdrawal thereof are respectfully requested.

In summary, claims 35 - 50 have been shown to recite subject matter which is patentably distinguishable over the references of record.

Reconsideration of the application and allowance of claims 35 - 50 are respectfully solicited.

Respectfully submitted,



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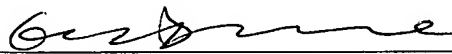
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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: March 3, 2005



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